

CHAPTER 5 • INDICATOR DEVELOPMENT

INDICATOR DEVELOPMENT

Designing Clear, Relevant and Measurable Project Indicators

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Learning Objectives

By the end of this chapter, participants will be able to:

- Define an indicator and explain its purpose
- Develop indicators at different results levels
- Apply the SMART criteria
- Distinguish standard and custom indicators
- Distinguish direct and proxy indicators
- Compare quantitative and qualitative indicators
- Explain leading and lagging indicators

- Distinguish process and results indicators
- Develop disaggregated indicators
- Construct numerators and denominators
- Establish baselines, targets and milestones
- Avoid indicator overload
- Identify indicator limitations
- Assess indicators using a quality checklist

What is an Indicator?

An indicator is:

A measure used to track progress, reflect change or assess project performance.

Indicators help turn objectives into information that can be collected, analysed and used.

Why Indicators Matter

Indicators enable project teams to:

- Track implementation
- Measure progress toward targets
- Identify underperformance
- Compare actual and planned results
- Support management decisions

- Demonstrate accountability
- Inform evaluation
- Communicate results
- Support learning and adaptation

Indicators and Project Objectives

Every indicator should be linked to a specific objective.

Objective

Target households adopt safe water-storage practices.

Indicator

Percentage of target households correctly storing drinking water.

Indicators Do Not Replace Objectives

Objective

What change does the project seek?
Example: Teachers use learner-centred teaching methods.

Indicator

How will the project recognize and measure that change?
Example: Percentage of observed teachers correctly applying at least three learner-centred techniques.

The Indicator Hierarchy

Indicators may be developed at:

- 1 Impact or goal level
- 2 Outcome or strategic objective level
- 3 Intermediate Result level
- 4 Output level
- 5 Activity or process level

Impact Indicators

Impact indicators measure

- Long-term changes
- Wider development conditions
- Changes to well-being
- Sustainable effects
- Changes to systems or populations

Examples

- Under-five mortality rate
- Prevalence of waterborne disease
- Average household income
- Primary school completion rate

Characteristics of Impact Indicators

Impact indicators are usually:

- Long-term
- Strategic
- Collected less frequently
- Expensive to measure

- Influenced by external factors
- Used mainly for evaluation
- Drawn from surveys or official statistics

Outcome Indicators

Outcome indicators measure

- Benefits experienced by participants
- Behavioural changes
- Service-use changes
- Institutional changes
- System performance
- Changes expected by the project's end

Examples

- % of households using safe water sources
- % of trained teachers applying new methods
- % of women controlling income from supported enterprises
- % of health facilities meeting quality standards

Intermediate Result Indicators

Intermediate Result indicators measure necessary changes between outputs and outcomes.

Examples

- % of participants demonstrating required knowledge
- % of farmers adopting improved practices
- % of committees meeting governance standards
- Proportion of service providers applying new protocols

Output Indicators

Output indicators measure direct project deliverables.

Examples

- Number of teachers trained
- Number of water points constructed
- Number of households receiving agricultural inputs
- Number of community committees established
- Number of safeguarding awareness sessions conducted

Activity Indicators

Activity indicators track whether planned work is being carried out.

Examples

- Number of training sessions conducted
- % of planned monitoring visits completed
- Number of community meetings held
- % of procurement actions completed on schedule

Indicator Hierarchy Example

Results Level	Result	Indicator
Impact	Reduced waterborne disease	Incidence of waterborne disease
Outcome	Households use safe water	% of households using safe sources
Intermediate Result	Households adopt safe handling	% correctly storing water
Output	Households receive education	Number completing sessions
Activity	Conduct hygiene sessions	Number of sessions conducted

Avoid Measuring Only Activities

A project may report

- 20 training sessions conducted
- 500 people trained
- 2,000 manuals distributed

But these do not show

- Whether knowledge improved
- Whether behaviour changed
- Whether services improved
- Whether outcomes were achieved

What is a SMART Indicator?

A strong indicator should be:

- 1 Specific
- 2 Measurable
- 3 Achievable
- 4 Relevant
- 5 Time-bound

S — Specific

A specific indicator identifies

- Who is being measured
- What is being measured
- Where the measurement applies
- What standard or condition is expected

Weak vs. specific

- Weak: “Improved hygiene.”
- **Specific: “% of target households with soap and water available at a designated handwashing location.”**

M — Measurable

A measurable indicator has

- A clear unit
- A defined calculation
- An identifiable data source
- A feasible collection method
- Consistent interpretation

Possible units include

- Number
- Percentage
- Proportion
- Rate
- Ratio
- Score
- Index
- Qualitative rating

A — Achievable

An achievable indicator can be measured with:

- Available time
- Appropriate skills
- Reasonable cost
- Accessible data
- Available technology
- Adequate staffing

R — Relevant

A relevant indicator:

- Measures the intended objective
- Supports a decision or information need
- Aligns with project logic
- Responds to stakeholder requirements
- Adds value to management or learning

T — Time-Bound

A time-bound indicator specifies when the result should occur, the measurement period, the reporting deadline and the frequency, where relevant.

Example: “By the end of Year 2, 75% of supported farmers apply at least three promoted climate-smart practices.”

SMART Indicator Example

Objective

Target households increase their use of safe drinking water.

SMART Indicator

“By December 2027, at least 80% of target households obtain their primary drinking water from an improved source located within 500 metres of the household.”

SMART Does Not Mean Perfect

SMART criteria do not guarantee that an indicator is:

- Ethical
- Inclusive
- Cost-effective
- Free from bias
- Sufficient by itself
- Able to explain why change occurred

Standard Indicators

Established measures required or recommended by:

Required or recommended by

- Donors
- Governments
- Clusters
- Sector agencies
- International frameworks
- Organizational systems

Examples

- Number of people reached with food assistance
- % of births attended by skilled personnel
- Number of children enrolled in formal education

Advantages of Standard Indicators

Standard indicators may provide:

- Established definitions
- Comparability
- Donor alignment
- Sector consistency

- Benchmarking
- Aggregation across locations
- Reduced design effort

Limitations of Standard Indicators

Standard indicators may:

- Miss local priorities
- Oversimplify context
- Measure donor needs rather than management needs
- Be costly to collect
- Be interpreted differently
- Fail to explain how change occurs

Custom Indicators

Custom indicators are created for the specific project context.

Examples

- Locally defined change
- Unique intervention results
- Context-specific behaviour
- Community priorities
- Learning questions
- New or innovative approaches

Combining Standard and Custom Indicators

A balanced set may include:

Standard

Percentage of children attending school regularly.

Custom

Percentage of caregivers reporting that safety concerns no longer prevent children from attending school.

Direct Indicators

A direct indicator measures the intended result itself.

Result

Households wash hands at critical times.

Direct Indicator

Percentage of observed households practising handwashing at critical times.

Proxy Indicators

A proxy measures a marker believed to represent the intended result.

Result

Households wash hands at critical times.

Proxy Indicator

Percentage of households with soap and water available at a handwashing station.

Direct versus Proxy Indicators

Direct Indicator	Proxy Indicator
Measures the result itself	Measures an associated marker
Usually more valid	Usually easier or cheaper
May require skilled collection	May rely on accessible evidence
Can affect observed behaviour	May not reflect actual practice

When to Use a Proxy

Use a proxy when:

- Direct data are unavailable
- Direct measurement is too costly
- The topic is sensitive
- Observation would change behaviour
- Measurement presents ethical risks
- A validated relationship exists between the proxy and the result

Risks of Proxy Indicators

Proxy indicators may:

- Misrepresent actual behaviour
- Be weakly associated with the result
- Produce false confidence
- Change differently across contexts
- Miss quality or consistency
- Require validation

Quantitative Indicators

Quantitative indicators express results numerically.

Examples

- Number of participants trained
- Percentage of households using safe water
- Attendance rate
- Ratio of health workers to patients
- Average income
- Test score

Common Quantitative Formats

Quantitative indicators may use:

- Counts
- Percentages
- Rates
- Ratios

- Averages
- Scores
- Indices

Qualitative Indicators

Qualitative indicators measure

- Perceptions
- Attitudes
- Experiences
- Opinions
- Judgments
- Quality
- Meaning

Examples

- Women report feeling safe at water points
- Participants describe services as respectful and accessible
- Community members perceive local authorities as responsive

Defining Qualitative Indicators

Subjective terms should be clearly defined. Example: “Women feel safe collecting water.”

Clarify

- What does safety mean?
- At what time?
- At which locations?
- Safe from which threats?
- How will perceptions be assessed?

Requirement

- Qualitative indicators require structured methods and clear interpretation criteria.
- Define terms operationally before data collection begins.

Combining Quantitative and Qualitative

Quantitative

- Percentage of participants using the service.

Qualitative

- Participants' explanations of why the service is or is not accessible.

Together they provide

- Scale of change
- Direction of change
- Reasons for change
- Context and meaning

Leading Indicators

Leading indicators provide early signals of whether future results are likely.

Examples

- Training attendance
- Knowledge gained
- Availability of materials
- Frequency of supervision
- Adoption of an early behaviour
- Timeliness of service delivery

Lagging Indicators

Lagging indicators measure results after change has occurred.

Examples

- Graduation rate
- Disease incidence
- Household income
- Employment rate
- Reduction in malnutrition
- Final outcome achievement

Leading versus Lagging

Leading	Lagging
Predicts future performance	Confirms achieved performance
Available earlier	Available later
Supports corrective action	Supports assessment
Often process or intermediate	Often outcome or impact

Example: Learning Performance

Outcome: Students improve learning performance.

Leading Indicators

- Teacher attendance
- Use of new teaching practices
- Student attendance
- Availability of learning materials

Lagging Indicator

- Percentage of students reaching the minimum learning standard.

Process Indicators

Process indicators measure

- How activities are implemented
- Timeliness
- Quality of delivery
- Compliance with procedures
- Efficiency
- Participation

Examples

- % of planned visits completed
- % of procurements completed on schedule
- % of feedback cases responded to within 15 days

Results Indicators

Results indicators measure

- Outputs
- Intermediate changes
- Outcomes
- Impact

Examples

- Number of people receiving services
- % adopting promoted practices
- % experiencing improved well-being
- Reduction in disease prevalence

Balanced Indicator Portfolio

Avoid relying only on

- Activities
- Outputs
- Donor-required figures
- Final outcomes

A balanced portfolio includes

- Process indicators
- Output indicators
- Leading indicators
- Outcome indicators
- Qualitative indicators
- Accountability indicators

What is Disaggregation?

Disaggregation means separating indicator data into relevant groups.

Examples

- Who is reached
- Who benefits
- Who is excluded
- Differences in results
- Inequalities
- Protection and inclusion concerns

Common Disaggregation Categories

Indicators may be disaggregated by:

- Sex
- Age
- Disability
- Location
- Vulnerability status

- Displacement status
- Service type
- Socioeconomic group
- Other context-relevant characteristics

Sex Disaggregation

Example indicator: Number of participants completing vocational training.

Report separately

Women · Men · Other categories where context and policy permit

Why it matters

Sex-disaggregated data can identify unequal participation and outcomes.

Age Disaggregation

Possible age categories may include:

- 0–5 years
- 6–11 years
- 12–17 years
- 18–24 years
- 25–49 years
- 50 years and above

Disability Disaggregation

Helps assess

- Access
- Participation
- Service quality
- Outcomes
- Barriers

Good practice includes

- Appropriate standardized questions
- Enumerator training
- Confidential handling
- Accessible collection methods

Location Disaggregation

Data may be separated by:

- Region
- Zone
- District
- Community

- Urban or rural
- Camp or host community
- Facility
- Project site

Vulnerability Status

Possible categories may include:

- Refugees
- Internally displaced people
- Female-headed households
- Child-headed households

- Older people
- Persons with disabilities
- Extremely poor households
- At-risk children

Ethical Disaggregation

Before collecting disaggregated data, ask:

- Is it necessary?
- How will it be used?
- Is the category clearly defined?
- Could it expose participants to harm?
- Can confidentiality be protected?
- Is the sample large enough to report safely?

Understanding Percentages

A percentage indicator requires a numerator (the number meeting the specified condition) and a denominator (the total eligible population being assessed).

$$\text{Percentage} = \text{Numerator} \div \text{Denominator} \times 100$$

Note

Many indicator errors result from unclear or changing denominators.

Example Calculation

Indicator: Percentage of trained teachers applying new methods. Numerator: trained teachers observed applying the methods. Denominator: total trained teachers observed.

$$72 \div 90 \times 100 = 80\%$$

Note

Clarify who is included and excluded from the calculation.

Denominator Questions

When defining the denominator, ask:

- All project participants?
- All eligible participants?
- All surveyed participants?
- All participants with complete data?

- All facilities?
- All households reached?
- All people expected to receive the service?

Common Calculation Errors

Avoid:

- Changing the denominator between periods
- Mixing households and individuals
- Counting repeat participants as new
- Including ineligible cases

- Using a denominator unrelated to the numerator
- Failing to manage missing data
- Reporting percentages without raw numbers

What is a Baseline?

A baseline is the indicator value before or at the beginning of the intervention. It provides the starting point for measuring change.

Examples

- Baseline attendance rate: 52%
- Baseline income: ETB 3,200 per month
- Baseline practice adoption: 18%

Why Baselines Matter

Baselines help projects:

- Understand the starting condition
- Set realistic targets
- Measure change
- Compare groups
- Interpret progress
- Support evaluation

What is a Target?

A target is the expected indicator value to be achieved by a specified time.

Examples

- Realistic
- Evidence-based
- Time-bound
- Ambitious but achievable
- Linked to resources and context
- Disaggregated where appropriate

Sources for Setting Targets

Targets may be informed by:

- Baseline findings
- Previous project performance
- Sector standards
- Government targets
- Donor requirements

- Available resources
- Implementation capacity
- Evidence from similar interventions
- Stakeholder expectations

What is a Milestone?

A milestone is an interim expected level of progress toward a final target.

Period	Expected Value
Baseline	20%
Year 1 milestone	40%
Year 2 milestone	60%
Final target	75%

Baseline, Milestone and Target Example

Indicator: Percentage of schools meeting minimum WASH standards.

1 Baseline: 15%

2 Year 1 milestone: 35%

3 Year 2 milestone: 55%

4 Final target: 75%

Cumulative versus Non-Cumulative Targets

Cumulative

Counts achievement over the entire project. Example: Total number of people trained.

Non-Cumulative

Reports performance within each period. Example: Percentage of complaints resolved within 30 days each quarter.

What is Indicator Overload?

Indicator overload occurs when a project tracks more indicators than it can manage well.

Examples

- Measure well
- Analyse
- Report
- Use
- Finance
- Maintain consistently

Consequences of Indicator Overload

Too many indicators can result in:

- High costs
- Staff burden
- Poor-quality data
- Delayed reporting
- Duplicate measurement

- Weak analysis
- Low data use
- Participant fatigue
- Confusion over priorities

How Many Indicators?

There is no universal number. Select indicators based on:

- Critical information needs
- Project complexity
- Donor requirements
- Management decisions

- Learning priorities
- Measurement resources
- Risks
- Stakeholder needs

Prioritizing Indicators

For each proposed indicator, ask:

- What decision will this inform?
- Who needs the information?
- Is another indicator already measuring it?
- What will collection cost?

- Can the data be collected reliably?
- What happens if we remove it?
- Will the information actually be used?

Core and Supplementary Indicators

Core

Essential for management, accountability and results reporting.

Supplementary

Used for specific learning, studies or temporary monitoring.

Indicators Provide Partial Evidence

An indicator does not explain everything.

It may show

- Whether change occurred
- The direction of change
- The magnitude of change

It may not explain

- Why change occurred
- Who caused the change
- Whether the change is sustainable
- What unintended effects occurred

Common Indicator Limitations

Indicators may be affected by:

- Poor definitions
- Measurement error
- Sampling bias
- Social desirability
- Incomplete records

- Data manipulation
- Seasonal variation
- External factors
- Proxy weakness
- Attribution challenges

Perverse Incentives

Poorly designed indicators may encourage undesirable behaviour.

Indicator	Possible unintended behaviour
• Number of people trained.	• Increasing numbers while reducing training quality • Counting repeat participants • Selecting easy-to-reach participants • Prioritizing quantity over inclusion

Attribution Limitations

An improved outcome does not automatically prove that the project caused it.

Examples

- Government programs
- Economic changes
- Seasonal conditions
- Other organizations
- Household actions
- Market changes

Indicator Interpretation Questions

Before drawing conclusions, ask:

- Is the data quality acceptable?
- Is the change meaningful?
- Is the denominator consistent?
- Are some groups experiencing different results?

- What contextual factors influenced the value?
- What qualitative evidence supports the finding?
- What limitations should be reported?

Step-by-Step Indicator Development

- 1 Review the objective
- 2 Clarify the intended change
- 3 Identify the information needed
- 4 Select the measurement type
- 5 Draft the indicator
- 6 Define numerator and denominator
- 7 Identify disaggregation
- 8 Establish baseline and target
- 9 Identify the data source and method
- 10 Test quality and feasibility

Indicator Development Formula

A quantitative indicator may include:

**Unit + Target group + Expected condition + Location +
Timeframe**

Example

“% of supported female-headed households in the target districts earning income from at least two sources by the end of Year 3.”

Participatory Indicator Development

Communities and stakeholders can help define:

- What meaningful change looks like
- How change should be measured
- Which differences matter
- What quality means locally
- Which indicators are understandable
- What risks data collection creates

SPICED Complement to SMART

Participatory indicators may also be assessed using SPICED:

SPICED

- Subjective
- Participatory
- Interpreted and communicable
- Cross-checked and compared
- Empowering
- Diverse and disaggregated

SMART vs. SPICED

- SMART emphasizes technical quality.
- SPICED emphasizes participation, interpretation and empowerment.

Practical Exercise

Select one project objective and develop:

- One quantitative indicator
- One qualitative indicator
- One leading indicator
- One lagging indicator

- One disaggregation plan
- One baseline and target
- One preliminary data source

SMART Indicator Quality Checklist

Review whether the indicator is:

✓ Specific

✓ Measurable

✓ Achievable

✓ Relevant

✓ Time-bound

✓ Clearly defined

✓ Disaggregated appropriately

✓ Ethically measurable

✓ Cost-effective

✓ Useful for decisions

Indicator Assessment Template

Quality Question	Yes	Partly	No
Does it measure the objective?			
Is the unit clear?			
Is the target group defined?			
Is the calculation clear?			
Can data be collected reliably?			
Is disaggregation appropriate?			
Is the cost reasonable?			
Will the data be used?			

Exercise Example

Objective: Young women increase sustainable employment.

Draft

“Employment improves.”

Improved

“By December 2028, at least 65% of supported women aged 18–24 are engaged in paid employment or self-employment lasting at least six consecutive months.”

Peer Review Instructions

Groups exchange indicators and assess:

- Alignment with the objective
- SMART quality
- Indicator type
- Feasibility
- Disaggregation

- Data source
- Ethical risks
- Possible unintended incentives
- Limitations

Common Indicator Mistakes

Avoid:

- Measuring only activities
- Using vague wording
- Confusing numbers with quality
- Selecting indicators without a clear purpose
- Using weak proxies
- Changing definitions over time

- Ignoring disaggregation
- Using unclear denominators
- Setting unrealistic targets
- Collecting too many indicators
- Failing to document limitations

Characteristics of a Strong Indicator Set

A strong indicator set is:

- Aligned with project logic
- Balanced across results levels
- Technically clear
- Inclusive
- Feasible

- Cost-effective
- Limited to essential measures
- Supported by reliable methods
- Useful for decisions
- Reviewed when the project changes

Chapter Summary

In this chapter, we learned that:

- Indicators measure progress and change.
- Indicators should align with each results level.
- SMART criteria improve indicator quality.
- Standard and custom indicators serve different needs.
- Direct indicators measure the result; proxies measure associated markers.
- Quantitative and qualitative indicators provide complementary evidence.

- Leading indicators provide early signals; lagging indicators confirm results.
- Disaggregation reveals differences among groups.
- Percentages require clearly defined numerators and denominators.
- Baselines, targets and milestones enable performance tracking.
- Indicator overload reduces data quality and use.
- Indicators have limitations and require careful interpretation.

Knowledge Check

- 1 What is an indicator?
- 2 Difference between output and outcome indicators?
- 3 What does SMART mean?
- 4 When should a proxy indicator be used?
- 5 Difference between quantitative and qualitative indicators?
- 6 What is a leading indicator?
- 7 Why is disaggregation important?
- 8 What is the denominator in a percentage indicator?
- 9 Difference between a baseline and a target?
- 10 Why should the number of indicators be limited?

Action Planning

Each participant should identify:

- One weak project indicator
- The objective it should measure
- The weakness in its current wording
- The corrected indicator
- Required disaggregation

- Baseline and target needs
- Data source
- Responsible person
- Deadline for revision

THANK YOU

Questions and Discussion

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Good indicators do more than count activities. They provide credible evidence of who is changing, what is changing and whether the project is moving toward its intended results.